

Anonymous Referee #1

HF radar and coastal altimetry-derived surface currents are quantitatively compared first at certain locations and then along the altimetry ground tracks in the southeastern Bay of Biscay during multiple years from 2009 to 2015. The two data sets are further used to describe the mesoscale dynamics of the Iberian Poleward Current and eddies in the region. It is demonstrated that a combination of different coastal ocean observing systems may provide a better understanding of the coastal ocean processes. Despite the limitations of the ocean observation techniques, the results are encouraging. Also, the topic is interesting and the paper is informative. I would recommend it be accepted for publication after minor revision.

Dear reviewer,

First of all, thank you for showing the technical errors. They really help to improve the manuscript and we have addressed all of the into the text. Thank you for your specific comments as well. We did not realize that we had not mentioned the confidence level of the correlations, which is 90%. We have also included it as explained below.

**Best regards,
Ivan Manso**

Comments are enumerated

AR = author's response

AC = author's changes in manuscript

1. Correlation coefficient is used to quantify the comparison between two time series without any statistical significance test. It is important to mention whether a correlation is statistically significant or not, because a high correlation coefficient may not be meaningful at all without a significance test.

AR: We considered the significance (90%), therefore, all the results shown in the manuscript are significant. However, it was not mentioned in the text. Thank you for this comment.

AC: We have added this information at page 8, line 16

2. "correlation coefficients" are simply written as "correlations" in many cases, which should be clearly specified.

AR: We have specified it.

AC: Page 8, line 15.

3. Throughout the manuscript, two decimal places are used for ocean current velocities. In my opinion, one decimal digit would be enough. This is because the accuracy of HF radar current measurement is about several cm/s, and the errors in altimetry-derived currents are even larger.

AR: We have changed the values, using only one decimal place throughout all the manuscript.

4. Page 1, Line 9, "resolution" should be "resolutions".

AR: Done.

AC: Page 1, line 9.

5. Page 1, Line 20, "higher" should be changed to "larger".

AR: The sentence has been rephrased and therefore this adjective removed

6. Page 1, Line 25, “in” should be changed to “by”.

AR: Done.

AC: Page 1, line 24.

7. Page 2, Lines 1-2, it would be good to refer to a recent book in this topic (Liu et al., 2015).

AR: Done.

AC: Page 2, line 1.

8. Page 2, Line 17, “resolution” should be “resolutions”.

AR: Done.

AC: Page 2, line 17.

9. Page 2, Line 17, “of” should be removed.

AR: Sorry, but we have not found any ‘of’ in that point.

10. Page 5, Line 6, the single sentence paragraph should be combined with the previous paragraph.

AR: We have moved this sentence to page 4, line 32.

11. Page 5, Line 14, the single sentence paragraph should be combined with the previous paragraph.

AR: Done.

12. Page 5, Line 23, “except” should be changed to “except for”.

AR: Done.

AC: Page 5, line 28.

13. Page 7, Line 27, what value is used for C_D ?

AR: The value we used was the one proposed by Large and Pond (1981) which depends on the velocity of the wind (U_{10}):

$$C_D = 1.2 \times 10^{-3} \quad \text{for } 4 < U_{10} < 11 \text{ m s}^{-1}$$
$$C_D = 10^{-3} (0.49 + 0.065 U_{10}) \quad \text{for } 11 < U_{10} < 25 \text{ m s}^{-1}$$

Note that we have considered 1.2×10^{-3} for every value smaller than 11 m s^{-1} and $10^{-3} (0.49 + 0.065 U_{10})$ for larger values.

AC: We have added the reference to Large and Pond (1981) at page 8, line 2.

14. Page 9, Line 28, “the higher is the correlation, the smaller is the difference...” should be changed to “the higher the correlation, the smaller the difference...”. Both “is” should be removed from the sentence.

AR: Done.

AC: Page 9, line 31.

15. Page 14, Line 27, "Altimetry has also its own limitations" should be changed to Altimetry also has its own limitations".

AR: Done.

AC: Page 15, line 1.